ACCESSION #: 9610080377

LICENSEE EVENT REPORT (LER)

FACILITY NAME: BYRON NUCLEAR POWER STATION PAGE: 1 OF 4

DOCKET NUMBER: 05000454

TITLE: UNIT 1 TRIP DUE TO PERSONNEL ERROR DURING SURVEILLANCE

ACTIVITIES

EVENT DATE: 09/11/96 LER #: 06-017-00 REPORT DATE: 09/27/96

OTHER FACILITIES INVOLVED: DOCKET NO: 05000

OPERATING MODE: 1 POWER LEVEL: 97

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR SECTION:

50.73(a)(2)(iv)

LICENSEE CONTACT FOR THIS LER:

NAME: B. Jacobsen, Operating Root Cause TELEPHONE: (815) 234-5441

X2622

COMPONENT FAILURE DESCRIPTION:

CAUSE: SYSTEM: COMPONENT: MANUFACTURER:

REPORTABLE NPRDS:

SUPPLEMENTAL REPORT EXPECTED: NO

ABSTRACT:

On 09/11/96, with Unit 1 in Mode 1 at 96.5% power, Operators were preparing to perform a monthly surveillance of the Turbine Protection System. Before beginning the surveillance, an Aux Operator erroneously placed a lever actuating tool on the local Turbine Protection System TRIP lever handle instead of the intended TEST lever handle. The Aux Operator realized his error. During attempts to remove the lever actuating tool, the trip lever handle was moved, and a Turbine Trip was generated. Because the Reactor was above 30% power, this also caused an automatic Reactor Trip. The Reactor Trip

resulted in an actuation of the Unit 1 Engineered Safety Features equipment. All automatic safety system actuations occurred as designed.

The Root Cause of this event was the Aux Operator's overconfidence concerning his ability to remove the lever actuating tool from the TRIP lever actuating the turbine trip. Coupled with his reflex reaction in attempting to remove the tool, this resulted in the Main Turbine trip and associated Reactor trip.

To prevent recurrence, a barrier was placed over the hub of the Turbine Trip lever to physically prevent the lever actuation tool from being placed over the local trip lever. Also, the Auxiliary Operator has received counseling.

This event resulted in an actuation of the Engineered Safety Features. It is, therefore, a reportable event per 10CFR 50.73(a)(2)(iv).

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A. PLANT CONDITIONS PRIOR TO EVENT:

Event Date/Time 09-11-96/0017

Unit 1 Mode 1 - Power Operations Rx Power approximately 96.5%

RCS [AB] Temperature/Pressure NOT/NOP

Unit 2 Mode 6 - Refueling Rx Power approximately 00%

RCS [AB] Temperature/Pressure N/A

B. DESCRIPTION OF EVENT:

There were no systems or components inoperable at the beginning of

this event which contributed to the severity of the event.

During first shift for 09/11/96, Unit 1 was in Mode 1 at 96.5%

reactor power and at steady state operation. At approximately 0005

hrs, 2 on shift Auxiliary Operators (AOs)(Non Licensed) completed

some breaker racking activities and returned to the Main Control

Room to prepare for performing the Turbine Oil Trips Monthly Surveillances, 1BOS TS-M1. The AOs checked in with the Station Control Room Engineer (SRO Licensed) for authorization to perform the surveillance and proceeded to the Unit 1 area of the Main Control Room to discuss the surveillance with the Unit 1 Nuclear Station Operator (NSO)(RO Licensed).

This monthly surveillance requires the efforts of 4 people, the NSO at the Main Control Board, another NSO in the Auxiliary Electrical Equipment Room, and 2 AOs at the Main Turbine Pedestal. During the Surveillance, 1 AO normally rotates the Turbine Protection System TEST lever handle in the counterclockwise direction and then holds the handle in that position while the other AO performs the steps of the procedure. Holding the turbine TEST lever in the test position prevents the various trip conditions induced by the surveillance from causing an actual trip of the turbine.

There is a period of about 30 minutes that the TEST lever must remain in the TEST position during the performance of the surveillances. Because of the location of the TEST lever inside a small alcove on the front of the High Pressure Turbine Pedestal area, holding the lever handle in test for that time period can be fatiguing. Additionally, the Operator is positioned in such a way as to impede access to some of the valves that require manipulation for the surveillance. Auxiliary Operators use a lever actuating

tool which is an extension handle type tool that fits over the hub of the TEST lever to ease the job of maintaining the TEST lever in the TEST position for the required time and positions the operator out of the way for accessing the required valves.

Right next to the TEST lever in the same small alcove, and extremely similar to the TEST lever in shape, is the Turbine Protection System TRIP/TRIP RESET lever. Rotated in the counterclockwise direction, this lever will reset the high pressure oil Turbine Protection System dump valve. Rotated in the clockwise direction, this lever will dump the Turbine Protection System high pressure oil and result in a Turbine Trip.

After making sure everything was ready for performance of the surveillance, the 2 AOs proceeded to the Unit 1 Main Turbine pedestal. As they arrived at the Turbine pedestal, the AO who would be performing the actions of the surveillance (AO #1) knelt down directly in front of the Turbine Protection System TRIP and TEST levers. The other AO (AO #2) was going to hold the TEST lever in the TEST position throughout the surveillance. An interview with this individual revealed that he was experienced in the task, was not distracted or fatigued, and felt no external time pressure to complete the surveillance.

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B. DESCRIPTION OF EVENT (cont.)

AO #2 understood the actions he would be performing during the surveillance. AO #2 had participated in the previous month's performance of this same surveillance. During that surveillance, he had been the one to hold the TEST lever in the TEST position. During that surveillance, the other AO involved was positioned to his left and AO #2 had manipulated the TEST lever, the lever that was to the right of the alcove, away from his partner. This time, AO #2 walked around where AO #1 was kneeling to access the area of the TRIP and TEST lever handles, ending up with his partner on his right hand side. While AO #1 filled out the coversheet information for the surveillance, AO #2 attempted to make ready for performing the surveillance. In a momentary lapse of attention [Did Not Detect Situation] resulting from his position in front of the TRIP and TEST levers, AO #2 mistakenly slipped the lever actuating tool into position on the TRIP lever, the lever that was to the left of the alcove, away from his partner [Spatial Misorientation].

AO #2 looked down at his partner filling out the surveillance coversheet and then back at the levers. When he looked back at the levers, he realized immediately that the lever actuating tool was on the wrong lever. AO #2 was confident [Overconfidence] that he could remove the lever actuating tool from the TRIP lever without causing the TRIP lever to actuate the turbine trip. He had never operated

the TRIP lever and was not aware [Unawareness] of how sensitive the lever is to movement. AO #2 rotated the lever actuating tool in the clockwise direction to allow the tool to disengage from the TRIP lever. It only takes a slight movement in the clockwise direction to cause the TRIP lever to actuate. During attempts to remove the tool, either the tool became bound while being rotated, or AO #2 rotated it slightly further than required for disengagement and removal, moving the lever in the clockwise direction enough that a Unit 1 Main Turbine trip was generated.

At 0017 hrs, the Main Control Room received the First Out Annunciator, "Turbine Trip - Rx Trip above P8" (P8 is > 30% Reactor power). The Main Control Room entered procedure 1BEP-0, Reactor Trip Or Safety Injection - Unit 1, and at 0018 hrs, transitioned into procedure 1BEP ES-0.1, Reactor Trip Response - Unit 1. Operators stabilized the unit in Mode 3. All automatic safety system actuations occurred as designed. All rods inserted into the core. (This statement satisfies ComEd's commitment to NRC Bulletin 96-01 for reporting post trip rod insertion.)

There were no safety consequences as a result of this event. The health and safety of the public were at no time affected or threatened. All Safe Shutdown Systems actuated and performed as designed.

Immediate Corrective Action taken was entry into the Byron Emergency

Procedures which provided guidance for responding to the trip condition. Repairs to minor mechanical problems resulting from the transient were affected. The reactor was returned to criticality at 0648 hrs on 09/12/96, entered mode 1 it 0930 hrs, and synchronized back on the grid at 1508 hrs on 09/12/96.

This event resulted in an actuation of the Engineered Safety Features for Unit 1 and is, therefore, a reportable event per 10CFR 50.73(a)(2)(iv).

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C. CAUSE OF EVENT:

The Root Cause of the 09/11/96 event was the Aux Operator's overconfidence concerning his ability to remove the lever actuating tool from the Manual TRIP lever without actuating the turbine trip. Coupled with his reflex reaction in attempting to remove the tool, this resulted in the Main Turbine trip and associated Reactor trip. Had the Aux Operator not attempted to remove the lever actuating tool so quickly, action could have been taken to allow removal without risk of actuating the Turbine Protection System. Specifically, the TEST lever could have been placed in the Test position during removal of the lever actuating tool, preventing manipulation of the TRIP lever from dumping the oil pressure which results in a Turbine trip.

D. SAFETY ANALYSIS:

There were no safety consequences as a result of this event. The health and safety of the public were at no time affected or threatened. All Safe Shutdown Systems actuated and performed as designed.

E. CORRECTIVE ACTIONS:

Immediate Corrective Action taken was entry into the Byron Emergency Procedures, which provided guidance for responding to the trip condition.

To prevent recurrence, the following actions have been, or are planned to be taken:

To prevent recurrence, the Aux Operator has received counseling about stopping when an error is identified and evaluating methods of correction before acting, and about using peer check and the STAR method to aid in preventing skill based errors.

The involved Aux Operator has performed a self assessment of the situation and developed materials for leading a discussion of this event. Included is a discussion on previously presented methods that have proven effective for preventing these types of errors, such as procedure compliance, peer check, and self checking. These materials will be used to share lessons learned associated with this event with the other Operators. Completion of this item will be tracked by NTS #454-180-96-0017-01.

Red painted metal washers have been glued to the lever hub of the Unit 1 and Unit 2 Main Turbine local TRIP levers. This physically prevents the lever actuating tool from being placed over the Trip lever hubs, and highlights the significance of the TRIP levers and their function.

F. RECURRING EVENTS SEARCH AND ANALYSIS:

An Industry Event search was performed. No directly applicable events, events where recovery actions from an initial error resulted in an event of this magnitude, were discovered. Several events pertaining to spatial misorientation in relation to equipment in close proximity appear to be applicable. Corrective actions from these events are in line with the counseling on using STAR to prevent these types of errors that has been performed in conjunction with this event. No other applicable events were found.

G. COMPONENT FAILURE DATA:

This event was not the result of component failure.

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Commonwealth Edison

Byron Generating Station

4450 North German Church Road

Byron, IL 61010-9794

Tel 815-234-5441

ComEd

September 27, 1996

LTR: BYRON 96-0248

FILE: 3.03.0800 (1.10.0101)

U.S. Nuclear Regulatory Commission

Document Control Desk

Washington, D.C. 20555

Dear Sir:

The Enclosed Licensee Event Report from Byron Generating Station is being transmitted to you in accordance with the requirements of 10CFR50.73 (a)(2)(iv).

This report is number 96-017; Docket No. 50-454.

Sincerely,

K. L. Kofron

Station Manager

Byron Nuclear Power Station

KLK/WD/js

Enclosure: Licensee Event Report No. 96-017

cc: A. B. Beech, NRC Region III Administrator

NRC Senior Resident Inspector

INPO Record Center

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